HERE IT IS !

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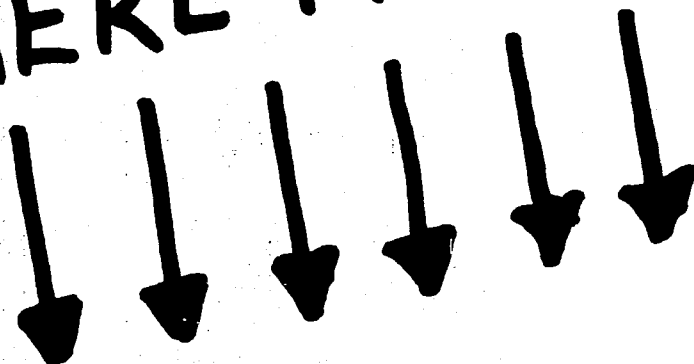
REEL   129

From

FELTYN', I.A.

L 59202-65   FHT(m)/EWP(b)/EWP(t) IJP(c)   JD
ACCESSION NR: AR5017544   UR/0058/65/000/006/F065/F065

SOURCE: Ref. zh. Fizika, Abs. 6E512

AUTHORS: Pundur, P. A. ; Feltyn', I. A.

TITLE: Measurement of the local lifetime of carriers in germanium

     Izv. AN LatvSSR. Ser. fiz. i tekhn. n., no. 6, 1964, 15-22

TOPIC TAGS: germanium, carrier lifetime, local lifetime, minority carrier, dis-
location density

TRANSLATION: Some problems are worked out concerning a procedure for measuring
the local lifetime τ of minority carriers in germanium. The ...
... the size and location of ...
... ...tions are obtained, under which τ is determined as the difference be-
tween the delays of two pulses. Results of measurements of τ in local regions of
... the samples with dislocation-density gradient are presented.

...   ...   65   ENCL: 00

Card 1/1

CIA/H/EWG(k)/EWP(k)/EWT(l)/EWA(k)

S/0181/64/000/010/C105/0106

AUTHOR: Felty*n', I.

TITLE: The second All-Union conference on p-n transitions in semiconductors [Held in Riga, 23 May through 2 June 1964]

SOURCE: AN LatSSR. Izvestiya, no. 10, 1964, 105-106

TOPIC TAGS: semiconductor, p n junction, germanium silicon semiconductor, recombination radiation

ABSTRACT: The article is a report of the proceedings of the second All-Union conference on p-n transitions in semiconductors, held in Riga from 23 May. ... was organized by the Institute ... ... attended, representing ... ... papers were ... Particular attention was paid to the recombination radiation of p-n junctions, for which B.M. Vul was awarded the Lenin Prize. V.M. Tuchkevich spoke about the possibilities for high-power semiconductor devices. Several questions were raised concerning the physical and electrical properties of p-n junctions in the binary compounds of germanium and silicon, as well as the

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L 22635-65
ACCESSION NR: AP4049707   2

theory of tunnel p-n junctions. Papers dealing with the elec-
trical properties of heterojunctions, such as germanium-gallium arsenide or indium
antimonide-gallium antimonide, were also presented, and the valuable work being carried
... at the Power Engineering Institute of the Latvian Academy of Sciences and at the In-
stitut fiziki i matematiki AN Litovskoy SSR (Institute of Physics and Mathematics of the
Lithuanian Academy of Sciences) was noted. Attention was called ... wing research
... is: 1) recombination radiation, 2) semiconductor power devices, 3) multilayer
... film devices for microelectronics, 4) heterojunctions in semiconductors and
metal-semiconductor contacts and 5) p-n junctions in materials with high impurity contents.

ASSOCIATION: none   [08]

SUBMITTED: 00   ENCL: 00   SUB CODE: 85, IC

NO REF SOV: 000   OTHER: 000   ATD PRESS: 3170

Card 2/2

L 58298-65   EWG(j)/EWT(l)/EWT(m)/EPF(c)/EWP(i)/EPR/EWP(j)/T/EWP(t)/EEC(b)-2/
EWP(b)/EWA(c)   Pr-4/Ps-4/Pi-4   IJP(c)   JD/WW/GG/RM
ACCESSION NR: AP5000964   UR/0371/65/000/001/0026/0032

AUTHORS: Kalnina, R. (Kalnynya, R. P.); Feltins, I. (Feltyn', I.A.)

TITLE: Production of protective films of silicon dioxide on
germanium and investigation of their protective properties

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhni-
cheskikh nauk, no. 1, 1965, 26-32

TOPIC TAGS: silicon dioxide, protective coating, prolytic decomposi-
tion, tetraethoxysilane, thin film

ABSTRACT: The purpose of this work was to study the conditions
under which SiO_2 films can be obtained on germanium by decomposition
of . . . . hoxysilane, and to check on the masking properties of the
. . . . . . films in processes involving the diffusion of antimony and
. . . . . . as well as the fusing of indium in german . . . . were
. . . . . . germanium by pyrolytic decomposition of the tetraetho-
. . . . . . using a setup whose schematic diagram is shown in Fig. 1 of

Card 1/3

L 58290-65
ACCESSION NR: AP5009964   /

the Enclosure.   Films 200 -- 20,000 $\overset{o}{A}$ thick were produced by this
technique.   A study was made of the influence of various factors on
the film growth, such as duration of the process, temperature of the
. . . . the coefficient of refraction . . . . was
found to be equal to the coefficient of refraction of SiO_2 produced by

oxidation of silicon. Films of thickness larger than 500 $\overset{o}{A}$, in the
temperature interval from 800 to 900C, after a diffusion annealing
. . . . , were found to be practically . . . . be
. . . . SiO_2 films protect the surface of germanium
. . . . indium up to . . . .

ASSOCIATION: Institut energetiki AN LatvSSR (Institute of Power En-
gineering AN LatvSSR

SUBMITTED: 04Jul64   ENCL: 001   SUB CODE: SS

NR REF SOV: 000   OTHER: 008

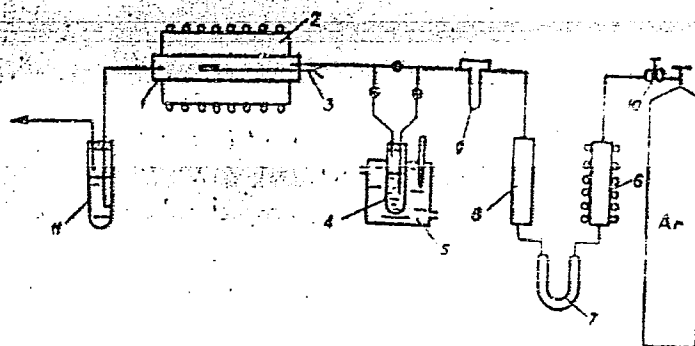Card   2/3

L. 59298-65
ACCESSION NR: AP5009964

ENCLOSURE: 01

Fig. 1.   Schematic diagram of experimental set-up.

1 - quartz tube, 2 - electric oven, 3 - thermocouple, 4 - saturator, 5 - water
jacket, 6 - copper-chip column, 7 - KOH granules, 8 - silica-gel column,
9 - manometer, 10 - reductor, 11 - oil seal.

Card 3/3

L 1996-66   EWT(1)/EWP(e)/EWT(m)/EWP(w)/EWP(1)/ETC/EWG(m)/T/EWP(t)/EWP(b)/EWA(h)
IJP(c)   JD/JG/AT/WH
ACCESSION NR: AP5023295

UR/0371/65/000/004/0123/0126

AUTHOR: Feltins, I. (Feltyn', I. A); Freiberga, L. (Freyberga, L. A)

TITLE: The properties of Si-SiC and Ge-SiC heterojunctions

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 4,
1965, 123-126

TOPIC TAGS: silicon semiconductor, germanium semi-conductor, junction diox-
ide

ABSTRACT: Silicon-silicon carbide and germanium-silicon carbide heterojunctions
were obtained by the thermal decomposition of organic silicon compounds. The
volt ampere characteristics of the junctions obtained were studied by the depend-
ence of the capacitance of the junction on the applied voltage. The contacts to the
germanium-silicon carbide and silicon-silicon carbide heterojunctions were made
by spraying gold. The volt ampere characteristics were determined by the con-
stant current method, while the dependence of the capacitance on the applied volt-
age was measured by the change in the front of the rectangular current impulses.
The measurements show that silicon-silicon carbide and germanium-silicon car-

Card   1/2

L 1998-66
ACCESSION NR: AP5023295

bide heterojunctions, by virtue of their electrical properties, are located between
semiconductor-dielectric heterojunctions (for example, silicon-silicon dioxide)
and heterojunctions between two semiconductors with a great difference in the
lattice constant, but are similar in their dielectric properties to silicon and
germanium. The dielectric parameters of the silicon carbide layer and structural
defects on the separation boundary between silicon or germanium and silicon car-
bide were found to exert a substantial effect on the electrical characteristics of
the junctions. Orig. art. has: 2 figures

ASSOCIATION: Institut energetiki AN Latv. SSR (Institute of Energetics AN
LatSSR)

SUBMITTED: 15Feb65   ENCL: 00   SUB CODE: SS, EM

NR REF SOV: 002   OTHER: 002

Card 2/2

L 24443-66   EWT(m)/T/EWP(t)   IJP(c)   JD

ACC NR: AP6007832   SOURCE CODE: UR/0120/66/000/001/0178/0180

AUTHOR: Feltyn', I. A.; Er'elis, U. Ya.

ORG: Institute of Power Engineering AN LatSSR, Riga (Institut energetiki AN LatSSR)

TITLE: A device for producing semiconductor specimens with controlled dislocation density

SOURCE: Pribory i tekhnika eksperimenta, no. 1, 1966, 178-180

TOPIC TAGS: semiconducting material, crystal dislocation, plastic deformation

ABSTRACT: The authors describe a device for plastic deformation of semiconductor single crystals in the form of rods or narrow plates with the application of a heater current. No force is applied directly to the middle section of the specimen. This eliminates localized accumulation of defects in this region and makes it possible to set up a temperature field in the specimen for uniform variation of dislocation density. Penetration of rapidly diffusing impurities from adjacent components into the middle section of the specimen is also prevented. A diagram of the device is shown in the figure. The ends of the specimen are rigidly fastened in molybdenum holders 1 which also transmit the deforming force to the specimen 2 and serve as electrodes. The holder presses against steel wedges 3. The lower wedge is fastened to micrometer screw 4 and the upper wedge is connected through ceramic insulator 5 to dial indicator

Card 1/3   UDC: 539.293:537.312.9

L 24443-66

ACC NR: AP6007832
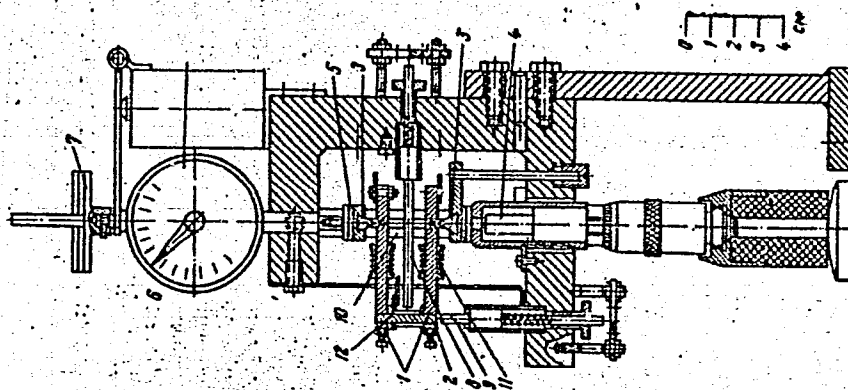
6 and weight platform 7. The current for heating the specimen is fed to the holder through flexible wires which do not add any force. Heating of the specimen is monitored by thermocouples at the side 8 and the end 9 of the specimen. When it is necessary to take special precautions against contamination of the specimen, the side thermocouple may be removed from the heating zone after heating conditions have been determined for a whole series of identical specimens. While the specimen is being heated, the top holder moves freely upward along guides 10. Heating elements 11 may be used for more uniform heating of the specimen. Resistance oven 12 has the same

Card 2/3

L 24443-66

ACC NR: AP6007832

function. The device has been used for studying the effect which dislocations have on the diffusion of elements in groups III and IV in germanium. Orig. art. has: 2 figures.

SUB CODE: 20/   SUBM DATE: 09Feb65/   ORIG REF: 004/   OTH REF: 003

Card 3/3

L. 07...0-67   EWT(l)/EWT(m)/EWP(t)/ETI   IJP(c)   AT/JD
ACC NR: AP6027893   SOURCE CODE: UR/0371/66/000/003/0019/0020

AUTHOR: Porin', V. M.; Feltyn', I. A.   ⌐7

ORG; Institute of Power Engineering AN LatvSSR (Institut energetiki AN LatvSSR)

TITLE: Production of a five-layer p-n-p-n-p structure in germanium

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 3, 1966,
19-20

TOPIC TAGS: germanium semiconductor, junction diode, physical diffusion, thermoelec-
tric power, dielectric breakdown

ABSTRACT: The authors produced structures of this type by using n-type germanium
(specific resistivity from 3 to 5 ohm-cm) specially treated to remove various contam-
inating metals from the surface. Samples measuring 10 x 4 x 3 mm were placed in
apparatus first evacuated to 10^{-5} mm Hg, and then filled with helium to a pressure
slightly higher than atmospheric. They were then annealed by diffusion in a two-zone
oven for 2.5 -- 20 hours at sample temperatures at 650 -- 850C and diffusant tempera-
ture 600 -- 750C. After the diffusion process, the sample was cooled at a rate of
200C/hr. The surface concentration of the diffusing indium exceeded 2.5×10^{16} cm^{-3}.
This resulted in a p-n-p-n-p structure free of the difficulties due to thermal con-
version. The widths of the individual layers varied with the diffusion temperature,

Card 1/2

L 09408-67

ACC NR: AP6027893

the annealing, and the surface concentration. The breakdown voltages of each junction range from 10 to 15 V. Methods of controlling the production and measuring the surface concentration are mentioned. The temperature dependence of the thermoelectric power in one sample is given. Orig. art. has: 1 figure

SUB CODE: 20/ SUBM DATE: 08Jan65/ ORIG REF: 003/ OTH REF: 005

Card 2/2

L 09902-67   EWT(m)/EWP(t)/ETI   IJP(c)   JD

ACC NR: AP6033669   SOURCE CODE: UR/0371/66/000/004/0034/0039

AUTHOR: Kalnynya, R. P. --Kalnina, R.; Feltyn', I. A. -- Feltins, I.   30

ORG: Institute of Power Engineering, AN LatSSR (Institut energetiki AN Latv.SSR)

TITLE: Local diffusion of gallium in germanium

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 4, 1966, 34-39

TOPIC TAGS: gallium, germanium, silicon dioxide film, gallium diffusion, gallium doped silicon dioxide, vapor phase diffusion

ABSTRACT: A method has been developed for the formation of local p—n transitions in germanium by the use of gallium doped silicon dioxide films. Conditions have been investigated for alloying silicon dioxide films with gallium in the process of preliminary diffusion from the vapor phase. Diffusion layers have been obtained in germanium with surface concentration of $\sim 10^{16} - 10^{17} cm^{-3}$ by gallium diffusion from the alloyed silicon dioxide films. Orig. art. has: 4 figures and 3 tables. [Based on authors' abstract]

SUB CODE: 20/ SUBM DATE: 29Nov65/ ORIG REF: 001/ OTH REF: 013/

Card   1/1

L 36860-66   EWP(j)/EWT(m)   RM

ACC NR: AP6019489   SOURCE CODE: UR/0197/66/000/005/0055/0059

AUTHOR: Bochkan, P. Ya.; Porin', V. M.; Feltyn', I. A.   50

ORG: Power Institute, AN Latv. SSR (Institut energetiki AN Latv. SSR)   B

TITLE: Prevention of thermal conversion of germanium by means of 6-chloro-8-mercaptoquinoline

SOURCE: AN LatSSR. Izvestiya, no. 5, 1966, 55-59

TOPIC TAGS: germanium, semiconductor conductivity, complex molecule

ABSTRACT: The possibility of cleaning the surface of germanium with the reagent 6-chloro-8-mercaptoquinoline in order to prevent the thermal conversion (change from n-type to p-type conductivity) of this semiconductor was investigated. A simplified method of synthesizing 6-chloro-8-mercaptoquinoline is described. The compositions of compounds of this reagent with Cu, Sn, Sb, Bi, Tl, In, Ga, Ni, Zn, Pb, Cd, Co, and Hg are given and the pH values at which they are formed and their colors are tabulated. The reagent reacts with the metal ions by forming the following complex:
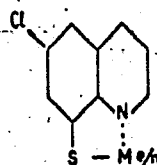
Card 1/2

L 36860-66

ACC NR: AP6019489

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where n is the valence of the metal. The reagent was found to be highly effective in preventing thermal conversion on n-type germanium. Orig. art. has: 1 table.

SUB CODE: 07,20/ SUBM DATE: 01Dec65/ ORIG REF: 003/ OTH REF: 004

Card 2/2

ACC NR: AP7005268   SOURCE CODE: UR/0371/66/000/006/0099/0100

AUTHOR: Kalnach, Ya. V.; Feltyn', I. A.; Freyberga, L. F.

ORG: Physicoenergetics Institute, AN Latv. SSR (Fiziko-energeticheskiy institut, AN Latv. SSR)

TITLE: About the effect of SiO_2 on the growth of silicon carbide on silicon

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 6, 1966, 99-100

TOPIC TAGS: silicon carbide, thin film, silicon dioxide, electron diffraction analysis

ABSTRACT: Monocrystalline layers of SiC were grown from methyldichlorosilane on silicon using either an argon or a hydrogen atmosphere at 1100°C and an electron diffraction study was done on the layers. Electron diffraction patterns were shown of epitaxial SiC grown under hydrogen and argon. Crystalline SiC grew under hydrogen, whereas an amorphous structure developed under argon. The external appearance of both forms of SiC was identical under microscopic examination. Electrolytic polishing of these layers did not cause growth figures. Growth conditions were changed by adding SiO_2 between the silicon and the growing SiC. Whenever SiO_2 was present, only amorphour SiC formed. After soaking in HF the amorphous layers were removed easily from

Card 1/2

ACC NR: AP7005268

the silicon substrate. A redness developed on the SiC layers as a result of oxidation due to the presence of SiO_2. This coloring could be removed by further treating the samples in 49% HF. The electrical properties of the SiC layers which formed in the presence of SiO_2 were examined by measuring the volt-ampere characteristics of n-n and p-n heterotransitions. For n-n heterotransitions SiC (+) was the direct voltage, while for p-n heterotransitions SiC (-) was the reverse voltage. The ratio of direct to reverse voltage was always 1/6. Tunneling occurred easily in these layers, since SiC had no effect on the volt-ampere characteristics. Orig. art. has: 1 figure.

SUB CODE: 11,20/   SUBM DATE: 21Jun66/   ORIG REF: 001/   OTH REF: 003

Card 2/2

ALEKSANDROWICZ, J.; BLICHARSKI, J.; FELTYNOWSKI, A.

Functional stages of blood platelets in electron microscope.
Polski tygod. lek. 7 no. 45:1472-1474 10 Nov 1952. (CLML 24:1)

1. Of the Third Internal Clinic (Head--Prof. J. Aleksandrowics,
M. D.) of Krakow Medical Academy and of the State Institute of
Hygiene (Head--F. Przesmycki, M.D.) in Warsaw.

ALEKSANDROWICZ, J.; BLICHARSKI, J.; FELTYNOWSKI.

Morphology of granulocytes; electron microscopy. Polski tygod. lek.
7 no.51-52:1765-1766 29 Dec 1952.
(CLML 24:2)

1. Of the Third Internal Clinic (Head--Prof. J. Aleksandrowicz, M.D.)
of Krakow Medical Academy and of the State Institute of Hygiene (Head
--Prof. F. Przesmycki, M.D.), Warsaw.

FELTYNOWSKI, A.

FELTYNOWSKI, A. ROMANOWSKI, W.

"Penetration of Bacteria into Nucleated Erythrocytes in the Light of Electron-mic-
roscope studies." p. 267 (Acta Physiologica Polonica. Vol, 4, no. 4 1953
Warszawa.)

Vol. 3, no. 6
SO: Monthly List of East European Accessions./Library of Congress, June   1954, Uncl.

Chemical Abstracts
May 25, 1954
Biological Chemistry

Electron-microscope studies on the morphology of influenza virus. Antoni Feltynowski and Zofia Zych. *Med. Doswiadczalna i Mikrobiol.* 5, 423-30(1953); cf. Hoyle, *et al.*, *Nature* 171, 256(1953).—Influenza virus (Type A) grown on chick embryo allantoic fluid, was purified by a simplified Taylor, *et al.*, method (C.A. 38, 5201[1]) i.e. by adsorption on chick red cells followed by elution with NaCl. Clear pictures of the virus were obtained. I. Z. R.

FELTYNOWSKI, A.; ZYCH, Z.

Influenza virus adsorption of chicken erythrocytes; electron microscopy.
Med. dosw. mikrob. 5 no.4:431-434 1953.   (CLML 25:5)

1. Of the Virusological Department (Head—Prof. F. Przesmycki, M.D.)
of State Institute of Hygiene, Warsaw.

FELTYNOWSKI, A.

Application of the replica method in study of erythrocyte surface with
special reference to the study of influenza virus adsorption on chicken
erythrocytes. Med. dosw. mikrob. 5 no.4:435-438 1953.   (CIML 25:5)

1. Of the Virusological Department (Head--Prof. F. Przesmycki, M.D.)
of State Institute of Hygiene, Warsaw.

FEL'TINOVSKIY, A.

ALEKSANDROVICH, I.U.; BLIKHARSKIY, Yu.; FEL'TINOVSKIY, A.

Morphology of granulocytes in electron microscopic picture. Arkh.
pat., Moskva 15 no.6:75-77 Nov-Dec 1953.   (CLML 25:5)

1. Of the Third Clinic of Internal Diseases of Krakow Medical Academy
(Director -- Prof. Yu. Aleksandrovich) and Krakow State Institute of
Hygiene (Director -- Prof. M. Prsesmycki).

FELTYNOWSKI, A.

Category : POLAND/Electricity - Semiconductors   G-3

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 1602

Author   : Feltynowski, A., Glass, I., Piwkowski, T., Torun, A.
Title   : Microstructure of Photoconductive Lead-Sulphide Layers

Orig Pub : Bull. Acad. polon. sci. Cl. III, 1954, 2, No 8, 389-391

Abstract : See also Ref. Zhur. Fiz., 1955, 22185

Card   : 1/1

FELTYNOWKI, A., GLASS, I., PIENKOWSKI, T., AND TORUN, A.

"Microstructure of Photoconducting Layers in Lead Sulfide".
Byul. Polsk. An. Otd. III, 2, No 8, pp 395-397, 1954

The fine crystalline structure of photoconcucting PbS was studied under electron microscope and the chemical structure by electron diffraction. Crystals have an elongated shape 900 - 3000 A long and 250 - 1000 A wide. The diffraction pattern indicates a regular face centered structure. (RZhFiz, No 10, 1955)

SO: Sum No 812, 6 Feb 1956

FELTYNOWSKI, A.

ROMANOWSKI, W.; FELTYNOWSKI, A.

Electron microscopy of structural changes of erythrocytes exposed to
heterogenous iso-hemagglutinins. Acta physiol. polon. 5 no.4:550-551
1954.

Lab. of Human Physiol. ... of Med, Warsaw

1. Z Zakladu Fizjologii Czlowieka Akademii Medycznej w Warszawie.
Kierownik: prof. dr Fr.Czubalski. Z Panstwowego Zakladu Higieny w
Warszawie. Kierownik: prof. dr F.Przesmycki.
(HEMAGGLUTIONATION,
   microscopy, electron)   *State Dal of Hygiene*
(MICROSCOPY, electron,
   of hemagglut.)   *L Warsaw*

FELIYNOWSKI, H.O.

PRZESMYCKI, Feliks; DOBROWOLSKA, Halina; FELTYNOWSKI, Antoni; STANCZYK,
Regina; WALKOWSKA, Elzhieta; ZYCH, Zofia; (techniczny wspolydzial)
CIEPINSKA, Swietlana; ZGORZELSKA, Krystyna

Laboratory characteristics of the epidemic of influenza in 1953.
Med. dosw. mikrob. 6 no.3:241-251 1954.
1. 2 Odlsialu/Wirusologii Panstwowego Zakladu Higieny. Kierovnik:
prof. dr.F. Przesmycki.
        (INFLUENZA, epidemiology,
            Poland, statist. analysis)

FELTYNOWSKI, ANTONI.

PRZESMYCKI, Feliks; WALKOWSKA, Elzbieta; DOBROWOLSKA, Halina; ZYCH,
    Zofia; FELTYNOWSKI, Antoni; PRZYBYLKIEWICZ, Zdzislaw; ZANSKI,
    Jerzy

Vaccination against influenza. Med.dosw. mikrob. 6 no.4:345-358 1954

1. Z Panstwowego Zakladu Higieny w Warszawie, Oddzialu Wirusologii.
Z Krakowskiej Wytworni Surowic i Szczepionek w Krakowie.   Z
Miejskiej Stacji Sanitarno-Epidemiologicznej w Lodzi.
        (INFLUENZA, prevention and control,
        vacc.)
    (VACCINES AND VACCINATION,
        influenza, results)

State Hygiene Lab (?) in Warsaw, Dept. of Virusology

✓ Krakow Production Factory of Serum & Vaccines in Krakow.

Urban

✓ Sanitary - Epidemiological Station in Lodz.

ALEKSANDROWICZ, Julian; BLICHARSKI, Julian; FELTYNOWSKI, Antoni

Electron microscopy of blood components. Postepy hig. med. dosw.
8 no.4:445-617 1954.
III Clinic of Internal Diseases of the Acad. of Med. Krakow.
1. III Kliniki Chorob Wewnetrznych A.M.Krakow, ul Kopernika 17.
Panstwowy Zaklad Higieny. Pracownia Mikroskopu Elektronowego.
Warszawa, ul. Chocimska 24.
         (BLOOD CELLS,
            microscopy, electron)
         (MICROSCOPY, ELECTRON,
            of blood cells)

State Hygiene Laboratory - Electron Microscope Workshop

FEŁTYNOWSKI, A.

3623. **Structural changes in human erythrocytes subjected to the influence of specific agglutinins, observed with an electron microscope.** W. Romanowski and A. Feltynowski *Bull. Acad. polon. Sci.,* 1955, 3, 73—75 (Lab. of Human Physiol., Sch. of Med., Warsaw and St. Inst. of Hygiene, Warsaw).—R.b.c. of groups, A, B, and AB are treated with sera containing anti-A, anti-B, and anti-AB agglutinins and also with sera from their own groups in control experiments. R.b.c. are examined with an E.M. and in the control experiments remain unchanged with smooth, non-corrugated surfaces. In agglutinated cells lying singly, a film of some substance is visible on the surface. In cells clumped together, some are closely united and others, slightly more apart, have clearly visible filaments and protuberances. The observations are discussed with photomicrographs.   E. C. BUTTERWORTH

Peltynowski, A

543. Electron microscopy of thermophilic bacteria. D. Shugar, A. Jarmolinska, and A. Peltyianwski *Bull. Acad. Polon. Sci.*, 1955, 3, 211—212 (Dept. of Biochem., State Inst. of Hyg., Warsaw).— E.m. observations were made on several strains of thermophilic bacteria (*Bacillus* spp.) isolated from natural fertilisers at 65° on agar slants, and selected for their ability to show reasonably good growth over the temp. range 45—65". There was no sign of any special protective membrane, capsule or coating, to protect the protoplasmic constituents against the high temp. Nor is the cell wall of any of these strains thicker than the cell walls of mesophilic strains. The cell wall thickness of a given strain showed no variation with temp. as might be expected if it played some protective rôle.

B. Viney.

3

FELTYNOVSKIY, A.

POLAND/Human and Animal Morphology - Blood and Organs of   Q-4
        Blood Production

Abs Jour   : Referat Zhur - Biologii, No 16, 1957, 70348

Author   : Feltynovskiy, A., Sikorskaya, E.
Title   : Observation by Electronmicroscopy of Erythrocytes
               Treated by Several Amines

Orig Pub   : Biul. Polskoy AN, 1955, otd.2, 3, No 8, 315-319

Abstract   : The action of n-phenylenediamine, n-toluoldiamine and
               n-aminophenol on erythrocytes was studied by means of
               an electronmicroscope. The action of the studied amines
               brought about in erythrocytes granulations, which diffe-
               red in morphology of typical Heinz bodies, appearing un<.:
               der the action of phenylhydrazine. A more detailed cha-
               racterisation of granulation requires further biological
               and chemical investigation.

Card 1/1   - 69 -

USSR/ POLAND/ Physical Chemistry - Crystals   B-5

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11022

Author   : Fel'tynovskiy A., Glass I., Grelevich L.
Inst   : Polish Academy of Sciences
Title   : Ekectronographic Investigation of Semiconductor Layers

Orig Pub : Byul. Pol'skoy AN, Otd. 3, 1955, 3, No 11, 595-597

Abstract : Photosensitive PbTe layers sublimated in vacuum were investigated by the
             electronographic method. According to roentgenographic data the initial
             PbTe had a lattice of NaCl type with a parameter 6.36 A. Electronograms
             of the sublimated layers show a system of rings corresponding to a sim-
             ple lattice with a parameter 3.33 A. This is attributed to the fact that
             the thin layer represents a modification of PbTe in which the atoms of
             Pb and Te are distributed chaotically over the points of the crystal lat-
             tice. By means of electron microscope formation of small individual crys-
             tals was observed in the PbTe layers under the influence of irradiation
             with an electron beam.

Card 1/1

SHUGAR, D.; JARMOLINSKA, A.; FELTYNOWSKI,A

Some electron microscope observations on thermophilic bacteria.
Acta microb.polon. 4 no.3:177-182 1955.

1. Panstwowy Zaklad Higieny w Warszawie.
       (MICROSCOPY, ELECTRON,
           of bacteria, thermophil)
       (BACTERIA,
           thermophilic, electron microscopy)

ROMANOWSKI, Wieslaw; FELTYNOWSKI, Antoni

Electron microscopy of structural changes in erythrocytes following
exposure to heterogenic isohemagglutinins. Acta physiol. polon. 6
no.2:171-176 '55.
       (ERYTHROCYTES,
           eff. of heterogenic isohemagglutinins, electron micros-
           copy)
       (MYCROSCOPY, ELECTRON,
           of erythrocytes after exposure to heterogenic isohema-
           gglutinins)
       (HEMAGGLUTINATION,
           Eff. of heterogenic isohemagglutinins on erythrocytes,
           electron microscopy)

FELIYNOWSKI, ANTONI

Electron microscope study of erytarocytes acted upon by amines. Antoni Feltynowski, Ewa Sikorska, and Stanislaw Krauze. Roczniki Panstwowego Zakladu Hig. 6, 205-8 (1955)(English summary).—p-Phenylenediamine (I), p-toluenediamine (II), and p-aminophenol (III), studied in vivo and in vitro, caused granulation in erythrocytes, but typical Heinz bodies, as in the case of phenylhydrazine, do not appear. Granulations affected by I are very similar to Heinz bodies in appearance while those affected by II and III are entirely different. Heinz bodies and granulations obtained are apparently intracellular bodies.   A. S. S.

PARMAS, J.; MIERZEJEWSKI, T.; FELTYNOWSKI, A.; LAZUGA, K.

Comparative studies on properties of Pasteurella tularemiae,
Pasteurella multocida, Pasteurella rodentium and Brucella
brucei. Ann. Univ. Lublin; sec.D 10:207-228 1955.

1. Z Dzialu Antropozoonoz Instytutu Med. Pracy Wsi w Lublinie
i Pracowni Mikroskopu Elektronowego P.Z.H. w Warszawie.
    (PASTEURELLA,
        multocida, pseudotuberculosis, P. tularensis & Brucella
        brucei, comparison (Pol))
    (BRUCELIA,
        brucei, comparison with Pasteurella multocida, P. tularensis
        & P. pseudotuberculosis (Pol))

ALEKSANDROWICZ, Julian; BLICHARSKI, Julian; FELTYNOWSKI, Antoni

Electronoscopy of the morphotic blood components with special
reference to blood platelets. Polskie arch. med. wewn. 25 no.1a:
143-147 1955.

1. Z III klin. chor. wewn. A.M. w Krakowie; kier. prof. dr. med.
J.Aleksandrowicz. Z Panstwowego zakladu Higieny w Warszawie;
dyrektor prof. dr. med. F.Przemyski.
        (BLOOD PLATELETS, determination
          electronoscopy)
        (BLOOD
          constituents, electronoscopy)

WILCZEK, Marian; FELTYNOWSKI, Antoni

Electron microscopic investigations on sympathetic ophthalmia.
Klin.oczna 25 no.2:77-79 1955.

1. Klinika Chorob Oczu A.M. w Krakowie. Kierownik: prof. dr.
M. Wilczek, praz Pracownia Mikroskopy Elektronowego Oddzial
Wirusow) Panstw. Zakladu Higieny w Warszawie. Dyrektor: prof.
dr F. Przesmycki.
        (OPHTHALMIA, SYMPATHETIC, bacteriology,
            virus, electron microscopy)
        (VIRUSES,
            ophthalmia, sympathetic electron microscopy)
        (MICROSCOPY, ELECTRON,
            of virus in sympathetic ophthalmia)

WILCZEK, Marian; FELTYNOWSKI, Antoni; PRZYBYLKIEWICZ, Zdzislaw.

Electron microscopy of trachoma virus. Klin.oczna 25 no.2:
81-84 1955.

1. Klinika Chorob Oczu A.M. w Krakowie. Kierownik: prof. dr M.
Wildzek Oddzial Wirusow (Pracowania Mikroslopy elektronowego)
Panstw. Zakladu Higieny w Warszawie Dyrektor: prof. dr F.
Przesmycki. Zaklad Mikrobiologii Lekarskiej A.M. w Krakowie
Kierownik: prof. dr Przybylkiewicz.
        (TRACHOMA, viruses,
           microscopy, electron)
        (MICROSCOPY, ELECTRON,
           of trachoma virus)
        (VIRUSES,
           trachoma, electron microscopy)

3608. Laboratory survey of the 1954 and 1955 influenza epidemics. F. Przesmycki, H. Dobrowolska, Z. Zych, and A. Feltynowski *Bull. Acad. polon. Sci.*, 1956, 4, 111—114 (Dept. of Virology, State Inst. of Hygiene, Warsaw, Poland).—Type A' viruses were responsible for the 1954 epidemic, the majority of strains isolated being akin to the "PAN" strain. All the strains in the 1954 epidemic had a filamentous structure. During the 1955 epidemic, 6 strains belonging to type B were isolated, these being antigenically remote from the Lee strain. Two groups could be distinguished antigenically and otherwise among the B strains; morphologically, all showed oval bodies. It would appear that B strains have become notably unstable. It might thus be possible, analogically to the case of A, to distinguish a subtype B.

—B. Vinzv

SZCZYGIELSKA, Jadwiga; BIERNACKI, Marian; PLESZCZYNSKA, Ewa;
    PARNAS, Jozef; FELTYNOWSKI, Antoni

Essays of demonstration of interference of swine influenza
virus G_1 with human influenza virus. Med. dosw. mikrob. 8
no.3:357-369 1956.

1. Z Katedry Mikrob. Lekarskiej AM w Lublinie.
    (INFLUENZA VIRUSES,
        interference of swine with human strains (Pol))

PRZESMYCKI, Feliks; DOBROWOLSKA, Halina; ZYCH, Zofia; FELTYNOWSKI, Antoni;
    przy wspoludziale techn. Hanny Cieplinskiej i Krystyny Zgorzelskie

Laboratory characteristics of the 1954-55 epidemic of influenza.
Przegl. epidem., Warsz. 10 no.2:97-102 1956.

1. Z Zakladu Wirusologii P.Z.H. Med. Dosw. i Mikrob. 1954, 3,
241.
        (INFLUENZA, epidemiology,
          in Poland (Pol))

BLACHARSKI, Julian; FELTYNOWSKI, Antoni

Microtomy of ultra-thin slices for electron microscopy.
Polski tygod. lek. 11 no.52:2204-2208 24 Dec 56.

1. (Z III Kliniki Chorob Wewnetrznych A.M. w Krakowie;
kierownik: prof. dr. J. Aleksandrowicz i z Panstwowego
Zakladu Higieny w Warszawie; kierownik: prof. dr. F. Przesmycki).
Krakow, ul. Kopernika 17 III Kl in. Chor. Wewn. A.M.
        (MICROSCOPY, ELECTRON,
            microtome for ultra-thin tissue slices (Pol))
        (MICROTOMES,
            ultra-thin tissue slices for electron microscopy (Pol))

FELINIAWSKI, A.

539.31

1433.   COAL SURFACE ANALYSIS BY MEANS OF AN
ELECTRON MICROSCOPE. A.Felinawski
...phys. Polon. Vol 15 N 1

...structure observation...

...with chromium. An aluminium layer is thin evaporated
and the saponlack dissolved in amyl acetate. The aluminium
layer with chromium pre-shadowing is mounted for observa-
tion in the electron microscope. The process
waiting 30 hours for the saponla...

FELTYNOWSKI, A .

POLAND/Electronics - Photocells and Semiconductor Devices   H-8

Abs Jour : Ref Zhur - Fisika, No 4, 1958, No 8777

Author   : Feltynowski, A., Glass, I., Piwkowski, T., Tarun, A.
Inst   : Institute of Physics, Polish Academy of Sciences, Warsaw,
           Poland
Title   : Microstructure of Photoconductive Lead Sulfide Layers

Orig Pub : Acta phys. polon., 1956, 15, No 5, 275-282

Abstract : The microstructure of PbS layers was investigated by the
           methods of electron diffraction and electron microscopy.
           The PbS layers were obtained by evaporation in vacuum, and
           the compounds for the investigations were obtained by the
           method of formvar pseudo replicas, and also by direct spat-
           tering on formvar, collodion, or aluminum films. The PbS
           layers consisted of crystals measuring 200 to 300 A. The
           type of substrate did not seem to affect the size and shape
           of the crystals. The diffraction patterns from directly
           spattered layers correspond to face-centered lattice of the
           NaCl type. The diffraction patterns of the pseudo replicas

Card   : 1/2

ALEKSANDROWICZ, J.; BLICHARSKI, J.; FELTYNOWSKI, A.

Recent studies on erythrocytes with aid of electron microscope.
Polski tygod. lek. 12 no.6:222-225 4 Feb 57.

1. (Z III Kliniki Chorob Wewnetrznych A.M. w Krakowie;
kierownik: prof. dr. Julian Aleksandrowicz i z Panstwowego
Zakladu Higieny w Warszawie; kierownik: prof. dr.
Feliks Przesmycki). Adres: Krakow, ul. Kopernika 17, III
Klinika Chorob Wewnetrznych A.M.
      (ERYTHROCYTES
          electron microscopy, review(Pol))
      (MICROSCOPY, ELECTRON
          of erythrocytes, review (Pol))

Country   : POLAND   S
Category: Human and Animal Morphology (Normal and Pathological).
              Blood and Organs of Hemopoiesis.

Abs Jour: RZhBiol., No 2, 1959, No 7558

Author   : Aleksandrowicz, J.; Blicharski, J.; Feltynowski, A.
Inst   : -
Title   : An Investigation of Blood Platelets by Means of
              Ultrathin Slices and the Electronic Microscope.

Orig Pub: Folia morphol., 1957, 8, No 3, 161-167

Abstract: A granulomere of blood platelets (BP) of healthy
              humans consists of 30-50 granules with the size of
              0.2-0.3 μ, which are grouped in the center or are
              disseminated over the whole KM. The granules of
              granulomere originate apparently from the mitochondrias
              of megakaryocytes. Among the granules of granulomere

Card   : 1/2

S-29

Feltynowski

POLAND/Electronics - Electron Microscopy

H-4

Abs Jour : Ref Zhur - Fizika, No 5, 1958, No 11104

Author   : Feltynowski, A.
Inst   : Not Given
Title   : First European Conference on Electron Microscopy

Orig Pub : Postepy fiz., 1957, 8, No 3, 377-379

Abstract : Brief remark on the first European conference on electron micro-
scopy, held from 17 to 20 October 1956 in Stockholm. Parti-
cipating in the work of the conference were more than 400 scien-
tists from 27 countries, including non-European ones (Japan
etc.) A survey of the accomplishments over the two year period
after the international conference in London was made. 180
papers were delivered to 22 section: on biology, virusology,
electron optics, problems connected with image contrast, with
resolution of electron microscopes, with research procedures,
etc. Of particular interest was the paper by Menster (England)
on a procedure for investigating crystals of platinum phthalo-
cyanide. Microphotographs of crystals with magnification on
one and one half million were demonstrated. Mention should

Card   : 1/2

GDR/Physical Chemistry. Crystals.   B

Abs Jour: Ref Zhur-Khim., No 5, 1959, 14376.

Author   : Feltynowski A., Glass I, Grelewicz L.
Inst   :
Title   : The Fine Structure of Photoconducting Layers of PbTe.

Orig Pub: Expl. techn. phys., 1958, 6, No 1, 17-20.

Abstract: The accumulation of dust in the vacuum of a PbTe film
          coating was examined electronomicroscopically and elec-
          trographically. On the basis of the obtained results,
          it is assumed that in the type of the NaCl lattice
          with a 6.42 A, the bundles are statistically occupied
          by Pb or Te atoms, leading to the occurrence of an
          electronogram which corresponds to a primitive cubic
          lattice with a 3.21 A. - M. Polteva.

Card   : 2/2

5

FELTYNOWSKI, A.

Jozef Parnas, A. FELTYNOWSKI, W. Bulikowski, "Anti-brucella Phage,"
Nature, Vol. 182, No. 4649, 6 Dec 58, pp1610-11.

Published from the Department of Medical Microbiology of the Medical
Academy and the Anthropozoonoses Section of the Institute of Rural
Occupational Medicine and Rural Hygiene, Lublin, Poland.

FGCTYNOUSKI, A

BLICHARSKI, J.
SURNAME (in caps); Given Names

Country: Poland

Academic Degrees: [not given]

Affiliation: Choroby Wewnetrznych Akademii Medycznej Krakow), Krakow; Director: Prof. T. TEMPKA, dr med; and the Electronic Microscope Laboratory of the State Institute of Hygiene (Pracownia Mikroskopu Elektronowego, Panstwowy Zaklad Higieny), Warsaw; Director: Prof. P. PRZESMYCKI, dr med
Second Clinic of Internal Disease, School of Medicine (II Klinika

Source: Warsaw, Przeglad lekarski, No 5, 1961, p. 221

Data: "Paroxysmal Nocturnal Haemoglobinuria. Electronic Microscopy Study of the Structure of Thrombocytes." (Abstract)

Co-authors:

FELTYNOWSKI, A.

KIRCHMAYER, S., Second Clinic of Internal Diseases, School of Medicine, Krakow; Director: Prof. T. TEMPKA, dr med

BARTOSZEWICZ, Wladyslaw; FELTYNOWSKI, Antoni

The effect of estrogens on the ultrastructure of the vaginal epithelium of mice. Folia morphologia 12 no. 4:235-247 '61.

1. Zaklad Biologii Nowotworow, Instytut Onkologii im. Marii Curie-Sklodowskiej, Warszawa. Dyrentor: prof. dr. J. Laskowski. Kierownik Zakladu: prof. dr. K. Dux i Panstwowy Zaklad Hygieny, Warszawa Kierownik: prof. dr. F. Przesmycki.

FELTYNOWSKI, Antoni; SIKORSKA, Ewa

Structure of the D 29 mycophage. Med. dosw. mikrobiol. 17 no.2:
153-156 '65.

1. Z Panstwowego Zakladu Higieny i Instytutu Gruzlicy w Warszawie.

24(2)

AUTHORS: Feltynowski, A., Górski, L.   POL/45-18-4-2/8

TITLE: Investigation of InSb Monocrystalline Cleavage Planes by
             Means of an Electron Microscope

PERIODICAL: Acta Physica Polonica, 1959, Vol 18, Nr 4, pp 279-293 (Poland)

ABSTRACT: It is the aim of this work to examine the question as to how
             far the method of examining cleavage planes of monocrystals
             by means of electron microscopes is suited to examine
             structure defects and their effect on semiconductor properties.
             Similar investigations were made by other authors, so by
             Gilman (1956) on Sn monocrystals by applying methods of
             light microscopy. Due to the defects in the monocrystals,
             socalled cleavage steps occur at the cleavage plane during
             the cleavage process. Bilby and Smith (1956) found socalled
             river patterns, i.e. a great number of cleavage steps at the
             grain boundary, by investigation of glide planes in cleaved
             Sn monocrystals after deformation. In this work, the authors
             used InSb monocrystals, which were produced by the method
             of zonal fusion and were cleaved along the faces (111) and
             (100). The structure was made visible by examining an
Card 1/2   aluminum sheet under an electron microscope. The aluminum

Investigation of InSb Monocrystalline Cleavage   POL/45-18-4-2/8
Planes by Means of an Electron Microscope

        sheet was obtained by an imprinting method. Figures 1 - 17
show the change in structure of cleavage steps and slip
bands in the glide plane. According to Mott and Nabarro
(1948), the gliding is due to dislocations caused by different
treatment of the crystal. Koohendörfer (1938) ascribes them
to different kinds of structure defects. According to the
relationship between cleavage steps and dislocations as well
as in view of the possibility of observing slip bands on the
cleavage plane, examination of those planes may offer a
method of examining defects in monocrystals of several
important semiconductor materials. The authors thank
Professor Doctor L. Sosnowski for his stimulating discussion.
There are 17 figures and 9 references.

ASSOCIATION: Institute of Physics of the Polish Academy of Sciences, Warsaw

SUBMITTED: November 15, 1958

Card 2/2

DUDZIAK, Zenon; FEIJS, Edward; PANEK, Genowefa

An attempt to separate group antibodies from the rheumatoid
factor by gel filtration of sera from cases of chronic rheuma-
toid arthritis. Med. dosw. mikrobiol. 17 no.3:257-263   '65.

1. Z Zakladu Mikrobiologii Slaskiej AM w Zabrzu (Kierownik: prof.
dr. J. Szaflarski).

L 45340-66   EWP(j)/EWP(t)/ETI   IJP(c)   JD/RM

ACC NR: AT6033597   SOURCE CODE: HU/2502/66/047/001/0037/0052

AUTHOR: Csaszar, Jozsef--Chasar, I. (Doctor; Szeged); Felvegi, Anna (Szeged)

ORG: Institute for General and Physical Chemistry, Szeged University, Szeged

TITLE: Magnetic and spectroscopic investigation of polynuclear complex cyanides

SOURCE: Academia scientiarum hungaricae. Acta chemica, v. 47, no. 1, 1966, 37-52

TOPIC TAGS: cyanide, spectroscopy

ABSTRACT: The magnetic susceptibility characteristics, absorption spectra, and
reflection spectra of 22 polynuclear complex cyanides of potassium, iron, cobalt,
nickel, and copper with iron, cobalt, nickel, ammonia, and platinum were determined
and the data (presented in detail) analyzed. In most instances the structures
appeared the same as those of the corresponding hydrated ions. The initial structures
of Turnbull Blue and of Prussian Blue are identical; subsequent changes in hue were
attributed to charge-transfer processes. Orig. art. has: 12 figures and 4 tables.
[Orig. art. in Eng.] [JPRS: 34,669]

SUB CODE: 07, 20 / SUBM DATE: 01Jul65 / ORIG REF: 003 / OTH REF: 038

Nitrogen Compounds

Card 1/1

√Hydrolysis of silk in acid solution. R. G. Broun, L. T. Solov'ev, and G. P. Fel's. (A. A. Zhdanov State Univ., Leningrad). Uchenye Zapiski Leningrad. Gosudarst. Univ. No. 135, Ser. Biol. Nauk No. 24, 173-9(1950).—A variety of Middle-East silk (N 15.5, H₂O 10.75, and ash 1.58%) heated with 8N H₂SO₄ (7-fold excess) for 10 hrs. on a sand bath gave products contg. amino N 94, hydroxyamino acid N 15, NH₃ 5.5, and glycine N 55%. Treatment of hydrolysis products with Ba(OH)₂ followed by electrophoresis in a 5-compartment app. equipped with gelatin membranes gave 3 fractions consisting of diamino acids 15.5, monoamino acids 79.0, and dicarboxylic amino acids 5%. Rates of hydrolysis of silk were equal in 8N H₂SO₄ and 10N HCl as judged by detn. of the ratios of amino N/total N and hydroxyamino acid N/total N. Hydrolysis was 94% complete after 6 hrs. Detn. of amino N/total N in hydrolysis products (obtained by heating silk with 2 parts of 10N HCl at 40°) and estn. of the free-amino/acid content (cf. Stein, et al., C.A. 38, 5237²) allowed calcn. of the following av. nos. of amino-acid units in the hydrolysis fragments after 3, 6, 10, 17.2, and 24 hrs.: 5.7, 4, 3, 2.3, 2.3.   Ivan Pascal

Felzeghy, E.

FEL'ZEN BAUM, A. I.

AID P - 2493

Subject   : USSR/Meteorology

Card 1/1   Pub. 71-a - 3/26

Author   : Fel'zenbaum, A. I., Kand. Phys. and Math. Sci.

Title   : Primary flow in the theory on shallow sea currents

Periodical : Met. i Gidro., 3, 15-22, My-Je 1955

Abstract   : The author gives a mathematical analysis of currents,
              using the Poisson formula for a shallow sea connected
              with a section of a deep sea. As an example, he uses
              the northern and central sections of the Caspian Sea
              and computes the horizontal circulation (wind from
              the East). The route of the currents is traced on
              three diagrams. Four Russian references, 1940-1953.

Institution: None

Submitted   : No date

SOV/124-57-3-3082

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 3, p 61 (USSR)

AUTHOR: Fel'zenbaum, A. I.

TITLE: Concerning the Theory of Ocean Currents (K teorii morskikh techeniy)

PERIODICAL: Tr. Gos. okeanogr. in-ta, 1955, Nr 29, pp 65-91

ABSTRACT: The aim of the work is to determine the steady-state currents and the distribution of the density and the level of the sea as generated by a wind. I. The case of deep sea. The initial equations comprise the hydrostatic equation, the equation of continuity, and two equations of motion containing terms determined by the turbulent mixing in both the horizontal and the vertical directions, the Coriolis force, and the pressure gradients. All of the equations are linear. The boundary conditions consist of the condition of equality of the component of the friction forces along the water-air boundary and the condition of adhesion of the liquid to the bottom of the sea. The procedure of the solution is as follows: First, an equation for the stream function is derived, wherein the term which expresses the variation of the Coriolis parameter with respect to the latitude is excluded;

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Concerning the Theory of Ocean Currents

then, by considering the stream function as known, the distribution of the density is determined with the aid of the V. B. Shtokman density model; finally, from the known field of density values the physical level of the sea is determined from the hydrostatic equation. For the determination of the velocities at different depth levels the author returns again to the equations of motion and considers the density and, consequently, the pressure as known. The flow velocity is split into a gradient component and a component of pure drift. The gradient component is considered to be geostrophic; the pure-drift component is expressed in the form of the Ekman solution. II. The case of shallow sea. In this case the terms determined by the Coriolis force and the horizontal mixing are excluded and the slope of a level is readily expressed in terms of the stream function. For the case of the shallow sea the author considers the solution of the problem for a variable sea depth and a variable coefficient of vertical mixing. The method of solution is similar to that of a deep sea. The author does not determine the stream function but limits himself to pointing out that it can be found by numerical integration of the equation obtained.

A. S. Sarkisyan

Card 2/2

FEL'DENBAUM A. I.

Fel'denbaum, A. I. Investigation of connections between wind, distribution of density, level and currents of an inhomogeneous sea. Izv. Akad. Nauk SSSR. Ser. Geofiz. 1956, 958-967. (Russian)

The known general solution of the distribution problem of velocities (currents) and densities which are caused by the action of a known wind on various levels of an inhomogeneous and deep sea of finite extension but arbitrary shape is applied by the author to a particular case when the sea's shape is rectangular and the friction is neglected.   E. Kogbetliantz (New York, N.Y.).

FEL'ZENBAUM, A.I.

Baroclinic layer in the ocean. Meteor. i gidrol. no.1:19-24
Ja '56.   (Ocean)   (MIRA 9:6)

FELZENBAUM A.I.

Distr: 4E1/4E4f

Fel'zenbaum, A. I. Investigation of vortex motions of a
fluid by the methods of analytic functions with a perfect
set of singular points. Vestnik Moskov. Univ. Ser.
Mat. Meh. Astr. Fiz. Him. 11 (1956), no. 1, 17-22.
(Russian)

The present application of the theory of complex ana-
lytic functions to the plane flow of an incompressible
fluid (admits only the existence of isolated vortexes
(singular points). But if in the vector field of flow there
exist whole vortex regions then the classical approach
cannot be used. To solve this problem Fel'zenbaum uses
the tool of complex analytic functions with a perfect set of
singular points. Assume a plane motion of an incompressi-
ble fluid in a domain Σ and a perfect set S of singular
points in Σ, corresponding to vortexes. The vortex in-
tensity γ is a continuous function of coordinates in S and
its value in S is nowhere equal to zero. The complex
potential $w(z)$ is equal to the surface integral over S of
the product of $[\gamma(t) \ln(z-t)]$ divided by $2\pi i$, where t refers
to the values in S only. It expresses the magnitude of w
everywhere in Σ outside a small region around the point
z. Using the tool of the theory of analytic functions,

Chair of Aeromechanics, Moscow Univ

Fel'zeNbauM, A. I

Fel'zenbaum shows that: (a) the complex velocity $f(z) = w'(z)$ is an analytic function in the whole plane with an everywhere perfect set of singular points, (b) all the points of S are singular points of $f(z)$, (c) $f(z)$ is bounded in the whole plane; (d) $w(z)$ is an analytic function. Next Fel'zenbaum derives both the generalized Blasius formulae for the force and moment (also for the arm of the force) acting on a closed contour (body) in a uniform flow. In agreement with the intuitive guess the circulation is shown to be equal to the surface integral over S of $\gamma(t)$.

M. Z. Krzywoblocki (Urbana, Ill.)

SOV/124-58-2-1929

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 2, p 58 (USSR)

AUTHOR: Fel'zenbaum, A. I.

TITLE: Indirect Method for the Determination of the Vertical Exchange
(Austausch) Coefficient in a Shallow Sea as a Function of its Depth,
the Wind Velocity, and the Vertical Coordinate (Kosvennyy metod
opredeleniya koeffitsiyenta vertikal'nogo obmena v ... .)
melkom more v zavisimosti ot yego glubiny, skorosti vetra i
vertikal'noy koordinaty)

PERIODICAL: Tr. In-ta okeanolog. AN SSSR, 1956, Vol 19, pp 46-56

ABSTRACT: The author applies dimensional concepts and shows that A, the
kinematic vertical-exchange coefficient corresponding to turbulent
motion within the liquid, can be expressed by the formula

$$A = c \, W \, H \, \phi(\bar{z}) \quad [\,\bar{z} = z/H\,]$$

where c is a factor of proportionality, W is the wind velocity,
H is the depth of the sea, and z is a vertical coordinate. Using
the solution of an auxiliary problem the author determines c,
assuming $\phi(\bar{z})$ known. Prescribing various values for $\phi(\bar{z})$ the

Card 1/2

SOV/124-58-2-1929

Indirect Method for the Determination of the Vertical Exchange

author obtained various expressions for A. A formula is given for the velocity of
a current. Comparisons are adduced between calculations and some tests in a
model basin, showing satisfactory agreement. Bibliography: 12 references.

Ya. I. Sekerzh-Zen'kovich

Card 2/2

FEL-ZENBAUM, A.I.

124-11-12729

Translation from: Referativnyy Zhurnal, Mekhanika, 1957,Nr. 11,p. 58 (USSR)

AUTHOR: Fel'zenbaum, A.I.

TITLE: The Full-Flow Transport Method in the Classical Theory of Ocean
             Currents. (Metod polnykh potokov v klassicheskoy teorii morskikh
             techeniy)

PERIODICAL: Tr. In-ta okeanolog., A.N. SSSR, 1956,Nr 19, pp 57-82

ABSTRACT: The A. discusses the problems of stationary currents in a homo-
             geneous ocean arising from the action of tangential wind shear at the
             ocean surface. Two basic equations of motion are established (where-
             in terms covering the turbulent vertical mixing, the Coriolis force,
             and the pressure gradients are included), namely, the equation of
             static equilibrium and the equation of continuity for an incompressible
             fluid. The boundary conditions at the ocean surface, that is, for

             $z = \zeta$, are represented by the equation of the air-water friction,

             those at the ocean bottom by the condition of adherence. On the ocean
             surface the condition of pressure continuity is also observed. A rise
             in the water level is represented by the sum $\zeta = \zeta_c + \zeta'$.

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124-11-12729

The Full-Flow Transport Method in the Classical Theory of Ocean Currents (cont.)

Utilizing the equation of static equilibrium and noting that the slope of the surface ξ_C, occasioned by the static effects of the atmospheric pressure, balances the gradient of that pressure, the author replaces the gradients of the hydrostatic pressure with the slopes of the surface ($\partial \xi'/\partial x$, $\partial \xi'/\partial y$) occasioned by the action of the wind. Ultimately the A. arrives at the following system of equations:

$$A \frac{\partial^2 u}{\partial z^2} + 2\omega \rho_0 \sin \varphi \, v = -g \rho_0 \frac{\partial \xi'}{\partial x} \qquad (1)$$

$$A \frac{\partial^2 v}{\partial z^2} - 2\omega \rho_0 \sin \varphi \, u = -g \rho_0 \frac{\partial \xi'}{\partial y} \qquad (2)$$

$$\frac{\partial s_x}{\partial x} + \frac{\partial s_y}{\partial y} = 0 \qquad (3)$$

Card 2/4   Here u and v are the velocity components of the current along the

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The Full-Flow Transport Method in the Classical Theory of Ocean Currents (cont.)

x and y axes; S_x and S_y are the components of the flow transport, A is the coefficient of vertical turbulent mixing, ω is the angular velocity of the Earth, g is the acceleration of gravity, and φ is the geographic latitude. For the solution of a problem, the A. firstly expresses u and v in terms of the wind friction and the surface slope, with due consideration to the boundary conditions. In order to express a direct relationship between the dynamic lifting of the sea surface and the wind, a second-order equation relative to ξ' can be obtained; it is noted that, even if the ocean is assumed to be sufficiently deep and the equation is simplified, the problem remains extremely complicated. If, utilizing Eq. (3), a flow-transport function ψ is introduced, all of the desired hydrodynamic characteristics can be expressed in terms of ψ . The A. demonstrates that, in that instance, the boundary condition of the problem become fairly simple. Simplified methods for the solution of the problem are shown separately for the cases of a very shallow and a very deep ocean, respectively. Analytical solutions for the problem are shown for two categories of specific cases: 1) Currents caused by a uniform wind in a closed

Card 3/4   sea having a constant depth; in this case $\psi = 0$ and the problem is

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The Full-Flow Transport Method in the Classical Theory of Ocean Currents (cont.)

solved readily;   2) Currents in a rectangular sea having a constant depth; this problem is resolved analytically by expanding the given and the unknown quantities in double series according to sine functions of x and y. A solution can also be obtained for the currents at the central cross-section of a sea having an elongated form.

(A. S. Sarkisyan)

Card 4/4

FEL'ZENBAUM, A.I.

Relation of the wind to the water level and to steady currents in shallow sea. Dokl. AN SSSR 109 no.1:80-83 Jl-Ag '56.   (MIRA 9:10)

1. Gosudarstvennyy okeanograficheskiy institut. Predstavleno akademikom V.V. Shuleykinym.
          (Winds) (Ocean currents)

FEL'ZENBAUM, A.I.

Fel'zenbaum, A. I. (Gov't Oceinograph. Inst.), Obobshchenie teorii Ekmana na sluchai neravnomernogo vetra i proizvol'nogo rel'efa dna zamknutogo moria. [Generalization of Ekman's theory for a case of non-uniform wind and given bottom relief of an enclosed sea.] *Akademiia Nauk SSSR, Doklady,* 109(2):299–302, July 11, 1956. 4 refs., 20 eqs. DLC–
The problem of the determination of the type of currents brought about by wind actions in enclosed sea with a known coastal configuration and a given bottom relief. In the solution of this problem the following are considered: vertical exchange by the amount of motion, counter-force friction at the bottom and slope of the sea surface covered by the waves. The wind field depending on both horizontal coordinates is considered as given; the elements to be determined are the velocities of currents at individual horizons and levels. The equation obtained is a generalization of Ekman's equation: it is

$$\frac{\partial}{\partial x}\left(\beta \frac{\partial \epsilon}{\partial x}\right) + \frac{\partial}{\partial y}\left(\beta \frac{\partial \epsilon}{\partial y}\right) + \frac{\partial}{\partial x}\left(\kappa \frac{\partial \epsilon}{\partial y}\right) - \frac{\partial}{\partial y}\left(\kappa \frac{\partial \epsilon}{\partial x}\right) = \mathrm{rot}_z\, n T - \mathrm{div}\, n T.$$

and it can be derived from Ekman's equation by assuming that the depth of the sea is everywhere double the depth of friction. *Subject Headings:* 1. Wind driven currents.—I.L.D.

FEL'ZENBAUM, A.I.; FOMIN, L.M.; SHTOKMAN, V.B.

Calculating deep-sea currents by means of using the surface currents
and the gradient of atmospheric pressure. Trudy Inst. okean. 25:153-
170 '57.   (MIRA 11:2)

(Ocean currents)

PA

AUTHOR   FEL'ZENBAUM A.I.

TITLE   On Extension of the Theory of Steady Currents in a Shallow Sea to the Case Where the Coefficient of Vertical Exchange is a Variable.
(Obobshchemiye teorii ustanovivshikhsya techeniy melkogo morya na slu-chay peremennogo koeffitsienta vertikal'nogo obmena. _Russian)

PERIODICAL   Doklady Akademii Nauk SSSR,1957, Vol 113, Nr 1, pp 86-89 (U.S.S.R.)
Received 9/1956   Reviewed 6/1957

ABSTRACT   The author generalized the theory of the steady currents of a shallow
sea for the case that the coefficient of the vertical exchange changes in
a vertical as well as in a horizontal direction. The equations of the stea-
died motion and the boundary conditions valid on the surface of the sea
are written down explicitly. By the multiple integration of these equations
the formulae for the components S_x and S_y of the entire current are ob-
tained. The problem is reduced to the determination of the function $\psi(x,y)$
of the entire flows. The equation for $(\psi)_L = 0$ applies at its boundary.The
the sea is closed-in, the relation of the wind are determined by the
components of the tangential stress of the wind velocity. The coefficient
modulus W and the components W_x and W_y of wind velocity, the depth
of the vertical exchange may depend upon the wind velocity, the author investigates the
of the sea, and the determination of that current which in an enclosed shal-
problem of constant depth is caused by a steady wind. In this case the
low sea of the problem is simplified into a LAPLACE equation for the
solution of the problem is simplified into a LAPLACE equation for the
function ψ. The solution is $\psi = 0$. The expressions found in conclusion for
the inclinations of the surface of the sea and for the horizontal compo-

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On Extension of the Theory of Steady Currents in a Shallow   PA - 2654
Sea to the Case Where the Coefficient of Vertical Exchange is a Variable.

nents of theaurrent velocity, as well as the equations for the functions
of the complete currents are written down explicitly and discussed. Com-
parison of the computed and observed current velocities shows which of
the computation systems concerned is the most advantageous.

ASSOCIATION   Institute for Oceanography of the Academy of Science of the USSR
PRESENTED BY
SUBMITTED   5.11.1956
AVAILABLE   Library of Congress
Card 2/2

AUTHOR   FEL'ZENBAUM, A.I.,

TITLE   Theoretical Foundations for Calculating the Ice Drift in the Central Arctic Basin.
(Teoreticheskiye osnovy rascheta dreyfa l'dov v tsentral'nom arkti-cheskom basseye - Russian)

ABSTRACT   The real ice-drift in the Arctic Basin is extraordinarily complicated because of some incidental factors (e.g. pulsation of the wind and the current. Form, dimensions and depth of imersion of the icebergs etc.). Therefore it is reasonable to average ice-drift, wind and current over a large enough interval of time. The author here assumes that the influence of the incidential factors compensates on the occasion of such averaging (over a month or a season). Moreover it is said to be possible to obtain this averaged condition by solving a steady problem. First the author puts down the equation of the seawater motion, that has become steady, of the ice and the air along the horizontal Cartesian X and Y. The nonlinear terms of inertia and the terms due by the horizontal exchange of the momentum are here neglected. Then the boundary conditions are given. On the surface of the ice the conditions of adhesion (Reviews note, apparently of the water to the ice), are valid, and the current may reach down only to a depthof H = 200 m. In great altitudes the wind is geostrophical. The drive-analyses of "Fram","Sedov" and the stations "North Pole 1-4" show that the entire ice-drift on an average

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Theoretical Foundations for Calculating the Ice Drift   PA - 3018
in the Central Arctic Basin.

consists by 2/3 of a gradint-drift and by 1/3 of a merely wind condi-
tioned drift. The generalization of the here discussed theory of the
general ice-drift for the case of variable coefficients of the verti-
cal exchange in the atmosphere and hydrosphere and for the case of va-
riable penetration of the current does not meet any fundamental diffi-
culties.(Without illustrations).

ASSOCIATION   Institute for Oceanology of the Academy of Sciences of the U.S.S.R.
PRESENTED BY   SHULEYKIN, V.V., 26.11.1956.
SUBMITTED   9.6.1956
AVAILABLE   Library of Congress
Card 1/2

Fel'zenbaum, A. I.

20-2- 15/50

AUTHOR: Fel'zenbaum, A. I.

TITLE: On the Compressions and Expansions of Ice in the Arctic Basin
            (O szhatiyakh i razrezheniyakh l'dov v arktichekom basseyne)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 2, pp. 217 - 220 (USSR)

ABSTRACT: The first chapter of this paper deals with the compressions and
            expansions of ice drifts in the central Arctic Basin, which have
            become steady. The author here obtains more accurate results than
            in his previous paper (ref. 1). According to these formulae the
            divergence of the velocity of the entire ice drift is proportional
            to the Laplace operator, applied to atmospheric pressure. For the
            determination of the zones of the compressions and expansions it
            suffices to compute the Laplace operator for the atmospheric pres-
            sure. In the zones with $\Delta p < 0$ the ice is compressed and in the
            zones with $\Delta p > 0$ it is expanded. In the zones with $\Delta p = 0$
            the connection of the ice does not change. The second chapter deals
            with compressions and expansions of ice drifts which have not become
            steady. As the problem of the drifts of not grown together masses
            of ice that have not become steady, has not been sloved, a compu-
            tation of the divergency of the velocity of the drift which has
Card 1/2   not become steady is not yet possible. It is, however, possible to

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On the Compressions and Expansions of Ice in the Arctic Basin

obtain a certain conception of the compressions and expansions of
ice masses in the case of drifts which have not become steady but
are caused only by wind, if the field of the tangential stress of
the wind is analyzed. The considerations, upon which this analysis
is based, are mentioned. Next, a highly idealized example is in-
vestigated. The last chapter deals with the index of atmospheric
circulation. This index is defined as a quantity which is propor-
tional to the divergence of the gradient of atmospheric pressure.
Besides, the integral index with respect to the surface of atmos-
pheric circulation is introduced. The index suggested here is not
only connected with the surface but has, besides, also an immediate
physical significance, for it characterizes the asymmetry of those
forces which act from the atmosphere on the ice masses. There are
7 Slavic references.

ASSOCIATION: Institute for Oceanology AN USSR
               (Institut okeanologiii Akademii nauk SSSR)

PRESENTED: April 30, 1957, by V. V. Shuleykin, Academician

SUBMITTED: April 26, 1957

AVAILABLE: Library of Congress
Card 2/2

FEL'ZENBAUM, A. I.

"The computation of the stabilized ice drift in the Arctic Basin"

report presented at a Scientific Conference on Dynamic and Thermal Interaction
of the Atmosphere and Hydrosphere, 26-29 Mar. 1958, Leningrad (Vest Ak nauk SSSR,
7, '58, pp. 128-29)

FEL'ZENBAUM, A.I.

Theory of settled drifting of ice and calculation of the average
drift for a period of many years in the central part of the Arctic
Basin. Probl.Sev. no.2:16-46 '58.   (MIRA 12:4)

1. Institut okeanologii AN SSSR.
                (Arctic Ocean—Ice)

3(9)

AUTHOR: Fel'zenbaum, A. I.   SOV/20-125-4-24/74

TITLE: The Generalization of the Classical Theory of Steady Marine
            Currents to the Case of the Variable Coefficient of Vertical
            Exchange (Obobshcheniye klassicheskoy teorii ustanovivshikhsya
            morskikh techeniy na sluchay peremennogo koeffitsiyenta verti-
            kal'nogo obmena)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 4, pp 779-781
            (USSR)

ABSTRACT: Formerly, in the course of the development of Ekman's classical
            theory, the author found the basic solution of the problem of
            determining steady flows due to inconstant wind in a closed-
            in sea with variable bottom relief. In the present paper the
            theory is generalized for the case in which the coefficient
            of vertical exchange in horizontal directions depends on the
            depth of the sea and on the Coriolis parameter. First, the
            basic equations of the theory are explicitly written down and
            explained. For the purpose of indirectly determining the
            vertical exchange coefficient the author investigates the
            problem of determining a vertical flow which is excited by
Card 1/2   a constant wind in a closed-in sea of constant depth. A

The Generalization of the Classical Theory of Steady   SOV/20-125-4-24/74
Marine Currents to the Case of the Variable Coefficient of Vertical Exchange

formula is written down for the velocity modulus of the
surface current. For the dependence of the tangential stress
T of wind on the wind velocity W it holds that $T = \gamma W^2$, and
for the exchange coefficient the formula

$A = \dfrac{\gamma^2 W^2}{\Omega^2 \rho^2 k^2} S$ is obtained, where k denotes the ratio between the

velocity of the surface current and the velocity of the wind
causing this current. A formula is then written down for the
quantity aH, which is of practical interest in the present
case. (The denotations used here appear to have been defined
already in an earlier paper). There are 2 figures and 4 Soviet
references.

ASSOCIATION: Institut okeanologii Akademii nauk SSSR (Institute for Oceano-
graphy of the Academy of Sciences, USSR)

PRESENTED: November 13, 1958, by V. V. Shuleykin, Academician

SUBMITTED: November 12, 1958
Card 2/2

3(9)

AUTHOR: Fel'zenbaum, A. I.   SOV/20-126-1-17/62

TITLE: Ice Field Drift Averaged Over Many Years in the Central Arctic
            Basin (Sredniy mnogoletniy dreyf l'dov v tsentral'nom
            arkticheskom basseyne)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 1, pp 66-69
             (USSR)

ABSTRACT: As an example for the application of the theory (Refs 1, 2),
            the author computed the ice drift averaged over many years in
            the Central Arctic Basin. The computations were made by the
            difference method for the field of atmospheric pressure
            averaged over many years, which is also illustrated in a sketch
            adjoining. The components of the velocity of the purely wind-
            caused drift were computed by the difference formulas devel-
            oped in a previous paper of the author (Ref 2), for a coeffi-
            cient K = 9000 km^2/sec.millibar of the isobaric drift and for
            a coefficient K' = 0.2 K of the diverted drift. The gradient
            drift is represented as the sum of the principal gradient drift
            (caused by the irregularity of the wind and computed without
            consideration of the water exchange with the neighboring sea
            basins) and of the additional gradient drift

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(caused by this water exchange). In the computation of the
additional gradient drift, the author started from the data
by V. T. Timofeyev (Refs 4, 5, 6). The computations delivered
tables for the values of the velocity and direction of the
single components, as well as of the total drift of ice. On
the basis of these data, the charts were drawn, among which the
present paper puts forward the charts for the purely wind-caused
drift, the gradient drift and the total ice drift. The analysis
of the tables and charts leads to the following conclusions :
1) In the eastern part of the Arctic Ocean (bordering the
Pacific Ocean), there is an anticyclonic circulation of the ice
with its center at about 78° north latitude and 146° west
longitude. This drift is mainly conditioned by the irregularity
of wind above the Central Arctic Basin. 2) In the western
(Atlantic) part of the Arctic Ocean, the ice mainly drives
from the Siberian coast into the gulf between Spitsbergen and
Greenland, the direction of the gradient drift coinciding, on
an average, with the direction of the purely wind-caused drift.
3) The principal part in the total drift averaged over many

Card 2/3   years is played by the gradient drift, the average speed

Ice Field Drift Averaged.. Over Many Years in the   SOV/20-126-1-17/62
Central Arctic Basin

of which (56 km per month) amounts to 66% of the average speed
of the total ice drift (85 km/month). The purely wind-caused
drift (the average speed of which is 34 km/month) is less
important, particularly in the eastern part of the Arctic
Ocean. 4) The principal part in the gradient drift of ice is
played by the principal gradient drift (average speed
41 km/month). The rôle of the additional gradient drift (average
speed 28 km/month) is less important, particularly in the areas
far from the Bering Gulf, and from the gulf between Spitsbergen
and Greenland. There are 4 figures.

ASSOCIATION: Institut okeanologii Akademii nauk SSSR (Institute of
               Oceanology of the Academy of Sciences, USSR)

PRESENTED: November 13, 1958, by V. V. Shuleykin, Academician

SUBMITTED: November 12, 1958

Card 3/3

FEL'ZENBAUM, Aleksandr Isayevich; SHTOKMAN, V.B., prof., otv.red.;
GUROV, Kh.P., red.izd-va; TIKHOMIROVA, S.G., tekhn.red.

[Theoretical foundation and methods of calculating steady
currents in the sea] Teoreticheskie osnovy i metody rascheta
ustanovivshikhsia morskikh techenii. Moskva, Izd-vo Akad.nauk
SSSR, 1960. 126 p.   (MIRA 13:11)
                    (Ocean currents)

FEL'ZENBAUM, A. I.

Doc Phys-Math Sci - (diss) "Development of the theory of steady currents and ice drift." Moscow, 1961. 18 pp; (Moscow State Univ imeni M. V. Lomonosov); 200 copies; price not given; list of author's works at end of text (12 entries); (KL,6-61 sup, 191)

SGIBNEVA, L.A.; FEL'ZENBAUM, A.I.

Theory of tides in a fluid with friction. Dokl. AN SSSR 164
no.2:315-318 S '65.   (MIRA 18:9)

1. Gosudarstvennyy okeanograficheskiy institut i Morskoy
gidrofizicheskiy institut AN UkrSSR. Submitted March 3, 1965.

FEL'ZENBAUM, A.I.

Dependence of wind coefficients in the Arctic basin on the wind velocity and ice thickness. Dokl. AN SSSR 164 no.3:556-558
S '65.   (MIRA 18:9)

1. Moskovskiy gidrofizicheskiy institut AN UkrSSR. Submitted March 3, 1965.

L 26474-66 EWT(1) GW

ACC NR: AP6017396   SOURCE CODE: UR/0020/65/164/002/0315/0318

AUTHOR: Sgibneva, L. A.; Fel'zenbaum, A. I.

ORG: State Oceanographic Institute (Gosudarstvennyy okeanograficheskiy institut);
Marine Hydrophysical Institute, AN UkrSSR (Morskoy gidrofizicheskiy institut AN UkrSSR)

TITLE: Theory of tides in a liquid with friction

SOURCE: AN SSSR. Doklady, v. 164, no. 2, 1965, 315-318

TOPIC TAGS: ocean tide, sea water, computer calculation, ocean dynamics

ABSTRACT: In computing tides in sea and ocean basins it is necessary to
take into account the variability of current velocity as a function of
the vertical coordinate. In this article the authors consider this
problem taking into account turbulent friction in sea water resulting
from vertical exchange of momentum. This effect is maximal in shallow
seas, whereas the inhomogeneity of sea water is more important in deep
seas and oceans. As in Sverdrup's studies, friction in sea water is
taken into account by introducing into the equations of horizontal mo-
tion terms which contain the second derivatives of current velocity
relative to the vertical coordinate. The authors consider the general
case when current velocity is dependent not only on time and the verti-
cal coordinate, but also on both horizontal coordinates. A system of
equations is derived which is integrated easily using an electronic com-
puter. Orig. art. has: 40 formulas. [JPRS]

SUB CODE: 08 / SUBM DATE: 01Mar65 / ORIG REF: 001 / OTH REF: 002
Card 1/1

L 09176-67   EWT(1)   GW

ACC NR: AP7002294   SOURCE CODE: UR/0020/66/168/004/0788/0791

AUTHOR: Mikhaylova, E. N.; Fel'zenbaum, A. I.; Shapiro, N. B.

ORG: Marine Hydrophysical Institute, AN UKRSSR (Morskoy gidrofizicheskiy institut AN UKRSSR)

TITLE: Computing steady-state sea and ocean currents

SOURCE: AN SSSR. Doklady, v. 168, no. 4, 1966, 788-791

TOPIC TAGS: ocean current, atmospheric wind, climatology

ABSTRACT:
     The article cited below is a special case which is best understood against the background of material given by one of the authors, A. I. Fel'-zenbaum, in his book Teoreticheskiye Osnovy i Metody Rascheta Ustanoviv-shikhsya Morskikh Techeniy (Theoretical Principles and Methods of Computation of Steady-State Sea Currents). The authors consider the problem of determination of a steady-state current caused by the wind and climatological factors in a sea or ocean basin. Since the horizontal dimensions of the basin considerably exceed its depth, there is a singular boundary layer at the bottom of the basin. It therefore is possible to adopt the condition of hydrostatics and in the equations of horizontal motion there is allowance only for vertical exchange of momentum. A numerical solution of the prob-

Card 1/2   UDC: 551.465

L 09176-67
ACC NR: AP7002294

lem is given. For a simplification two cases are considered: a homogeneous
liquid with allowance for the nonlinearity of the equation of motion and a
nonhomogeneous liquid without this allowance made. The nonstationary prob-
lem can be solved easily by neglecting certain terms in the equations of
horizontal motion. This article was presented by Academician L.-I. Sedov on
28 July 1965. Orig. art. has: 19 formulas. [JPRS: 37,397]

SUB CODE: 08,04 / 26Jul65 / ORIG REF: 005

Card   2/2   nat